

CLAIMS

1. A gene encoding a protein from merozoite of *Babesia caballi*.

2. The gene of claim 1 wherein said protein is a protein that has the amino acid sequence shown in SEQ ID NO: 2, or a protein that has the amino acid sequence shown in SEQ ID NO: 2 with one to several amino acid residues therein being deleted, substituted or added and that is immunologically reactive with an antibody or antiserum elicited by a 48kDa protein of rhoptry of *Babesia caballi* merozoite.

3. The gene of claim 1 or 2 wherein said gene has the nucleotide sequence shown in SEQ ID NO: 1, or has a nucleotide sequence that hybridizes to a complementary sequence to the nucleotide sequence shown in SEQ ID NO: 1 and encodes a protein that is immunologically reactive with an antibody or antiserum elicited by a 48kDa protein of rhoptry of *Babesia caballi* merozoite.

4. A recombinant protein from merozoite of *Babesia caballi*.

5. The recombinant protein of claim 4 wherein said protein has the amino acid sequence shown in SEQ ID NO: 2, or has the amino acid sequence shown in SEQ ID NO: 2 with one to several amino acid residues therein being deleted, substituted or added and is immunologically reactive with

an antibody or antiserum elicited by a 48kDa protein of rhoptry of *Babesia caballi* merozoite.

C2
6. The recombinant protein of claim 4 or 5 wherein said protein is expressed from a host transformed with a 5 DNA vector into which cDNA having the nucleotide sequence encoding the amino acid sequence as shown in SEQ ID NO: 2 is incorporated.

10 7. Lysogenic bacteria with recombinant phage expressing a 48kDa protein of rhoptry of *Babesia caballi* merozoite, which is prepared by infecting *E. coli* with phage into which cDNA having the nucleotide sequence encoding the amino acid sequence shown in SEQ ID NO: 2 is incorporated.

15 8. An antibody capable of binding to a 48kDa protein of rhoptry of *Babesia caballi* merozoite.

9. The antibody of claim 8 wherein said protein is a naturally occurring protein or a recombinant protein.

10. The antibody of claim 8 or 9 wherein said antibody is a monoclonal antibody.

20 11. An antigen comprising the recombinant protein from merozoite of *Babesia caballi* as set forth in any of claims 4 to 6.

Sub A2
12. A method for diagnosing equine babesiosis which comprises specifically detecting anti-*Babesia caballi* 25 antibody present in equine blood by using the antigen as

set forth in claim 11.

13. A method for diagnosing equine babesiosis which comprises detecting the presence of *Babesia caballi* merozoite in equine blood by using the antibody capable 5 specifically binding to a 48kDa protein of rhoptry of *Babesia caballi* merozoite.